SEQUENCE LISTING

<110> University of Kentucky Research Foundation
JONES, Grace
JONES, Davy

<120> MUTANTS AND ASSAY SYSTEM TO IDENTIFY USP/RXR LIGANDS

<130> 050229-0420

<140> 10/719,024
<141> 2003-11-24

<150> 60/428,282
<151> 2002-11-22

<160> 23

<170> PatentIn version 3.3

<210> 1
<211> 2488
<212> DNA
<213> Drosophila melanogaster

<400> 1
aaaaatgtcg acgcgaaaaa aggtatttat tcattagtca gaaagtctgg cattctttgt 60

ttgttggtaa aaagcgcaat tgtttggagg cgagcgaata aagtgcgctg ctccatcggc 120

tcaagattat gtaaatgcag caacgacccc accaacaacg aaactgcaac ctgctccact 180

tggcccaacg gaccaatagc ggacggacgg acacggtggc gttggcaaag tgaaacccca 240

acagagaggc gaaagcgagc caagacacac cacatacaca cgaagagaac gagcaagaag 300

aaaccggtag gcggaggagg cgctgccccc agttcctcca atatacccag caccacatca 360

caagcccagg atggacaact gcgaccagga cgccagcttt cggctgagcc acatcaagga 420

ggaggtcaag ccggacatct cgcagctgaa cgacagcaac aacagcagct tttcgcccaa 480

ggccgagagt cccgtgccct tcatgcaggc catgtccatg gtccacgtgc tgcccggctc 540

caactccgcc agctccaaca acaacagcgc tggagatgcc caaatggcgc aggcgcccaa 600

ttcggctgga ggctctgccg ccgctgcagt ccagcagcag tatccgccta accatccgct 660

gagcggcagc aagcacctct gctctatttg cggggatcgg gccagtggca agcactacgg 720

cgtgtacagc tgtgagggct gcaagggctt ctttaaacgc acagtgcgca aggatctcac 780

atacgcttgc agggagaacc gcaactgcat catagacaag cggcagagga accgctgcca 840

gtactgccgc taccagaagt gcctaacctg cggcatgaag cgcgaagcgg tccaggagga 900

gcgtcaacgc ggcgcccgca atgcggcggg taggctcagc gccagcggag gcggcagtag 960

cggtccaggt tcggtaggcg gatccagctc tcaaggcgga ggaggaggag gcggcgtttc 1020

tggcggaatg ggcagcggca acggttctga tgacttcatg accaatagcg tgtccaggga 1080

tttctcgatc gagcgcatca tagaggccga gcagcgagcg gagacccaat gcggcgatcg 1140

tgcactgacg ttcctgcgcg ttggtcccta ttccacagtc cagccggact acaagggtgc 1200

cgtgtcggcc ctgtgccaag tggtcaacaa acagctcttc cagatggtcg aatacgcgcg 1260

catgatgccg cactttgccc aggtgccgct ggacgaccag gtgattctgc tgaaagccgc 1320

ttggatcgag ctgctcattg cgaacgtggc ctggtgcagc atcgtttcgc tggatgacgg 1380

cggtgccggc ggcgggggcg gtggactagg ccacgatggc tcctttgagc gacgatcacc 1440

gggccttcag ccccagcagc tgttcctcaa ccagagcttc tcgtaccatc gcaacagtgc 1500

gatcaaagcc ggtgtgtcag ccatcttcga ccgcatattg tcggagctga gtgtaaagat 1560

gaagcggctg aatctcgacc gacgcgagct gtcctgcttg aaggccatca tactgtacaa 1620

cccggacata cgcgggatca agagccgggc ggagatcgag atgtgccgcg agaaggtgta 1680

cgcttgcctg gacgagcact gccgcctgga acatccgggc gacgatggac gctttgcgca 1740

actgctgctg cgtctgcccg ctttgcgatc gatcagcctg aagtgccagg atcacctgtt 1800

cctcttccgc attaccagcg accggccgct ggaggagctc tttctcgagc agctggaggc 1860

gccgccgcca cccggcctgg cgatgaaact ggagtagggt cccgactcta aagtctcccc 1920

cgttctccat ccgaaaaatg tttcattgtg attgcgtttg tttgcatttc tcctctctat 1980

cccttatacc ctacaaaagc cccctaatat tacgcaaaat gtgtatgtaa ttgtttattt 2040

ttttttatt acctaatatt attattatta ttgatataga aaatgttttc cttaagatga 2100

agattagcct cctcgacgtt tatgtcccag taaacgaaaa acaaacaaaa tccaaaactt 2160

gaaaagaaca caaaacacga acgagaaaat gcacacaagc aaagtaaaag taaaagttaa 2220

actaaagcta aacgagtaaa gatattaaaa taacggttaa aattaatgca tagttatgat 2280

ctacagacgt atgtaaacat acaaattcag cataaatata tatgtcagca ggcgcatatc 2340

tgcggtgctg gccccgttct aaatcaattg taattacttt ttaacataaa tttacccaaa 2400

acgttatcaa ttagatgcga gatacaaaaa tcaccgacga aaaccaacaa aatatatcta 2460

tgtataaaaa atataaactg cataacaa 2488

<210> 2
<211> 508
<212> PRT
<213> Drosophila melanogaster

<400> 2

Met Asp Asn Cys Asp Gln Asp Ala Ser Phe Arg Leu Ser His Ile Lys
1 5 10 15

Glu Glu Val Lys Pro Asp Ile Ser Gln Leu Asn Asp Ser Asn Asn Ser
20 25 30

```
Ser Phe Ser Pro Lys Ala Glu Ser Pro Val Pro Phe Met Gln Ala Met
        35                  40                  45

Ser Met Val His Val Leu Pro Gly Ser Asn Ser Ala Ser Ser Asn Asn
    50                  55                  60

Asn Ser Ala Gly Asp Ala Gln Met Ala Gln Ala Pro Asn Ser Ala Gly
65                  70                  75                  80

Gly Ser Ala Ala Ala Ala Val Gln Gln Gln Tyr Pro Pro Asn His Pro
                85                  90                  95

Leu Ser Gly Ser Lys His Leu Cys Ser Ile Cys Gly Asp Arg Ala Ser
            100                 105                 110

Gly Lys His Tyr Gly Val Tyr Ser Cys Glu Gly Cys Lys Gly Phe Phe
        115                 120                 125

Lys Arg Thr Val Arg Lys Asp Leu Thr Tyr Ala Cys Arg Glu Asn Arg
    130                 135                 140

Asn Cys Ile Ile Asp Lys Arg Gln Arg Asn Arg Cys Gln Tyr Cys Arg
145                 150                 155                 160

Tyr Gln Lys Cys Leu Thr Cys Gly Met Lys Arg Glu Ala Val Gln Glu
                165                 170                 175

Glu Arg Gln Arg Gly Ala Arg Asn Ala Ala Gly Arg Leu Ser Ala Ser
            180                 185                 190

Gly Gly Gly Ser Ser Gly Pro Gly Ser Val Gly Gly Ser Ser Ser Gln
        195                 200                 205

Gly Gly Gly Gly Gly Gly Gly Val Ser Gly Gly Met Gly Ser Gly Asn
    210                 215                 220

Gly Ser Asp Asp Phe Met Thr Asn Ser Val Ser Arg Asp Phe Ser Ile
225                 230                 235                 240

Glu Arg Ile Ile Glu Ala Glu Gln Arg Ala Glu Thr Gln Cys Gly Asp
                245                 250                 255

Arg Ala Leu Thr Phe Leu Arg Val Gly Pro Tyr Ser Thr Val Gln Pro
            260                 265                 270

Asp Tyr Lys Gly Ala Val Ser Ala Leu Cys Gln Val Val Asn Lys Gln
        275                 280                 285
```

```
Leu Phe Gln Met Val Glu Tyr Ala Arg Met Met Pro His Phe Ala Gln
    290                 295                 300

Val Pro Leu Asp Asp Gln Val Ile Leu Leu Lys Ala Ala Trp Ile Glu
305                 310                 315                 320

Leu Leu Ile Ala Asn Val Ala Trp Cys Ser Ile Val Ser Leu Asp Asp
                325                 330                 335

Gly Gly Ala Gly Gly Gly Gly Gly Gly Leu Gly His Asp Gly Ser Phe
            340                 345                 350

Glu Arg Arg Ser Pro Gly Leu Gln Pro Gln Gln Leu Phe Leu Asn Gln
        355                 360                 365

Ser Phe Ser Tyr His Arg Asn Ser Ala Ile Lys Ala Gly Val Ser Ala
    370                 375                 380

Ile Phe Asp Arg Ile Leu Ser Glu Leu Ser Val Lys Met Lys Arg Leu
385                 390                 395                 400

Asn Leu Asp Arg Arg Glu Leu Ser Cys Leu Lys Ala Ile Ile Leu Tyr
                405                 410                 415

Asn Pro Asp Ile Arg Gly Ile Lys Ser Arg Ala Glu Ile Glu Met Cys
            420                 425                 430

Arg Glu Lys Val Tyr Ala Cys Leu Asp Glu His Cys Arg Leu Glu His
        435                 440                 445

Pro Gly Asp Asp Gly Arg Phe Ala Gln Leu Leu Leu Arg Leu Pro Ala
    450                 455                 460

Leu Arg Ser Ile Ser Leu Lys Cys Gln Asp His Leu Phe Leu Phe Arg
465                 470                 475                 480

Ile Thr Ser Asp Arg Pro Leu Glu Glu Leu Phe Leu Glu Gln Leu Glu
                485                 490                 495

Ala Pro Pro Pro Pro Gly Leu Ala Met Lys Leu Glu
            500                 505
```

<210> 3
<211> 61
<212> DNA
<213> Trichoplusia ni granulovirus

<400> 3

gaccaattaa taggtgacct gcgataaaaa ttacctataa atatgtgatg ttgctggatt 60

g 61

<210> 4
<211> 134
<212> DNA
<213> Trichoplusia ni granulovirus

<400> 4
cgagaggtta tcgcccaata caacaacaat gataatgacg tgcaagcaga taatagtgaa 60

aaaataacag atactagagt ataaaaaggg gatgctggga gtggacaggc acagtcgtgg 120

tgtggcagca aaca 134

<210> 5
<211> 69
<212> DNA
<213> Trichoplusia ni granulovirus

<400> 5
tcagtataaa aaggggtgca ttctcggtaa gagtacagtt gaactcacat cgagttaact 60

ccacgatga 69

<210> 6
<211> 63
<212> DNA
<213> Trichoplusia ni granulovirus

<400> 6
taagggtagt ataaaaaggc gatcaatcat tgacaaacag tttgcagcag gctgtgggaa 60

cga 63

<210> 7
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Chemically synthesized

<400> 7
gaggtcaatg acctc 15

<210> 8
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Chemically synthesized

<220>
<221> misc_feature

<222> (7)..(18)
<223> N is A, T, G or C

<220>
<221> misc_feature
<222> (8)..(18)
<223> Any one of these 11 N's may or may not be present

<400> 8
aggtcannnn nnnnnnnnag gtca 24

<210> 9
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Chemically synthesized

<220>
<221> misc_feature
<222> (7)..(18)
<223> N = A, T, G or C

<220>
<221> misc_feature
<222> (8)..(18)
<223> Any one of these 11 N's may or may not be present

<400> 9
tgacctnnnn nnnnnnnntg acct 24

<210> 10
<211> 13
<212> DNA
<213> Artificial Sequence

<220>
<223> Chemically synthesized

<220>
<221> misc_feature
<222> (7)..(7)
<223> n is a, c, g, or t

<400> 10
aggtcanagg tca 13

<210> 11
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Chemically synthesized

<220>

<221> misc_feature
<222> (7)..(7)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (20)..(20)
<223> n is a, c, g, or t

<400> 11
aggtcanagg tcaaggtcan aggtca 26

<210> 12
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Chemically synthesized

<220>
<221> misc_feature
<222> (7)..(7)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (20)..(20)
<223> n is a, c, g, or t

<400> 12
aggtcanagg tcatgacctn tgacct 26

<210> 13
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Chemically synthesized

<400> 13
caaggtcaaa ggtcag 16

<210> 14
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Chemically synthesized

<400> 14
caaggtcaag aaaggtcag 19

<210> 15
<211> 27
<212> DNA

<213> Artificial Sequence

<220>
<223> Chemically synthesized

<400> 15
caaggtcaag aggccaaaga aggtcag 27

<210> 16
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Chemically synthesized

<220>
<221> misc_feature
<222> (9)..(20)
<223> n is a, c, g, or t

<400> 16
caaggtcann nnnnnnnnnn aggtcag 27

<210> 17
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Chemically synthesized

<400> 17
ggtaccgagc tcttacgcgt gctagcccgg gctcga 36

<210> 18
<211> 40
<212> DNA
<213> Artificial Sequence

<220>
<223> Chemically synthesized

<400> 18
cggtatttca caccgcacat ggtgcactct cagtacaatc 40

<210> 19
<211> 43
<212> DNA
<213> Artificial Sequence

<220>
<223> Chemically synthesized

<400> 19
gtgccaagtg gtcaacaaag cgctcttcca gatggtcgaa tac 43

<210> 20
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
<223> Chemically synthesized

<400> 20
gcgatcgatc agcctgaagg cccaggatct cctgttcctc ttccgcatta c 51

<210> 21
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
<223> Chemically synthesized

<400> 21
ctttctcgag cagctggagg cgtggtggcc acccggcctg gcgatgaaac t 51

<210> 22
<211> 89
<212> DNA
<213> Trichoplusia ni granulovirus

<400> 22
cgtgtcggtg ccgctgctgg ggtcgcgcgc cacatatatg cgtgcgagga gcgcgcgccg 60

gcagtgcggc gtgcgacccc gaccagaca 89

<210> 23
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Chemically synthesized

<400> 23
caagacatag aggccaaaga agacatg 27